EPA
United States
Environmental Protection
Agency

Explanation of Significant Differences
Medley Farm Drum Dump
Superfund Site

Site Name:	**Medley Farm Drum Dump Superfund Site**
CERCLA ID #:	**SCD 980 558 142**
Site Location:	**902 Burnt Gin Road (County Hwy 72), Gaffney, Cherokee County, South Carolina**
Lead Agency:	**U.S. EPA, Region 4**
Support Agency:	**South Carolina DHEC**

Gaffney, SC

I. Introduction

This decision document presents an Explanation of Significant Differences (ESD) for the Medley Farm Drum Dump Superfund Site (Site), located in Gaffney, South Carolina. The Record of Decision (ROD) addressed by this ESD is:

Record of Decision, Summary of Remedial Alternative Selection, May 29, 1991.

The ESD is issued in accordance with § 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. §§ 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.435(c)(2)(i). The Director of the Superfund Division has been delegated the authority to sign this ESD.

This ESD will become part of the Administrative Record for the Medley Farm Drum Dump Superfund Site (NCP 40 C.F.R. § 300.825(a)(2)), which has been developed in accordance with § 113 (k) of CERCLA, 42 U.S.C. § 9613 (k).

The Administrative Record is available for review at the Cherokee County Public Library, 300 East Rutledge Avenue, in Gaffney, (864) 487-2711, and at U.S. EPA Region 4, 11th Floor Library, 61 Forsyth Street SW, Atlanta, Georgia 30303, Monday - Friday, 7:30 a.m. to 4:30 p.m.

II. Statement of Purpose

Since the ROD finalization date, issues concerning institutional controls have been identified at the Site.

The purpose of this ESD is to document a final decision to implement institutional controls in the form of a restrictive covenant as part of the groundwater remedy for the Site.

The United States Environmental Protection Agency (EPA) prepares an ESD when it is determined by the Agency that changes to the original selected remedy are significant, but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost.

III. Site History and Contamination

Site History

The Site occupies approximately seven acres within a 62-acre tract of land formerly owned by Mr. Ralph Medley. It is located off Burnt Gin Road, about six miles south of the City of Gaffney. Land use in the Site vicinity is primarily agricultural and light residential. Until the early 1970s, the property was maintained as woods and pasture land. From approximately 1973 to 1978, several area textile, paint, and chemical manufacturing firms paid to dispose of their industrial wastes on the property. The Site was first documented in 1981 when a firm disposing of wastes at the Site complied with the disposal notification requirements of CERCLA, reporting its use of the Medley Farm Site to EPA.

In May 1983, in response to the concerns of a local citizen who witnessed the disposal of barrels on the site property, the South Carolina Department of Health and Environmental Control (SCDHEC) took samples at the Site and notified EPA of the presence of half-buried drums, many of which were leaking. That same month, EPA also investigated and sampled wastes, soil, and water at the Site.

EPA performed an emergency removal operation in June and July 1983. During this operation, EPA removed a total of 5,383 fifty-five-gallon drums and fifteen-gallon pails of waste, 2,132 cubic yards of refuse and contaminated soil, and 70,000 gallons of water and sludge from six small waste lagoons on the Site. The lagoon areas were then backfilled and graded. Testing of the solid and liquid waste materials removed from the property indicated that the primary chemicals of concern were volatile organic compounds (VOCs).

SCDHEC and EPA conducted several investigative studies on the Site during 1983 and 1984. These studies included the sampling of private wells in the Site vicinity, a geological study, more extensive site groundwater sampling, and a preliminary investigation of Site hydrogeology.

The Medley Farm Site was proposed for addition to the National Priority List (NPL) in June 1986. The Site was placed on the NPL in March 1990.

In January 1988, five Potentially Responsible Parties (PRPs) signed an Administrative Order on Consent (AOC) with EPA, in which they agreed to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the Medley Farm Site. The RI/FS began in late 1988 and was completed in early 1991. Generally, the RI/FS findings included contamination of Site soils by VOCs in 3 areas, and VOC contamination of Site groundwater.

Site Contamination

The contaminants found at the site were VOCs, present in site soil and groundwater. Some or all of the contaminants identified are hazardous substances as defined in § 104(14) of CERCLA, 42, U.S.C. § 9601(14), and 40 C.F.R. § 302.4. Estimates of approximately 53,000 cubic yards of contaminated soil, and 24.1 million gallons of contaminated groundwater, were determined during the RI/FS.

IV. Selected Remedy

As stated above, the ROD for this Site was signed on May 29, 1991. An ESD~~)~~ was issued on December 10, 1993, which slightly modified the remedy selected in the 1991 ROD.

These documents are available in the Superfund Document Management System (SDMS) under Record Numbers 33187 and 20049.

The selected remedy in the ROD included the following components:

GROUNDWATER: Pump and Treat

- Extraction of contaminated groundwater;
- On-site treatment of extracted groundwater via air stripping, with the need for controlling air stripper emissions to be evaluated in the remedial design;
- Off-site discharge of treated groundwater to Jones Creek via a National Pollution Discharge Elimination System (NPDES) permit; and,
- Continued analytical monitoring of groundwater and surface water.

SOIL: Soil Vapor Extraction (SVE)

- Installation of a network of air withdrawal (vacuum) wells in the unsaturated zone;
- Construction and operation of a pump and manifold system of PVC pipes, to be used for applying a vacuum on the air extraction wells to remove the contaminants from the soil; and,
- Use of an in-line vapor-phase carbon absorption system to trap and absorb the contaminants (organic vapors) out of the soil vapor, prior to its release to the atmosphere.

The 1993 ESD removed the requirement that air emissions from the SVE system be treated using activated carbon absorption filters. Engineering calculations made during the remedial design process demonstrated that the expected emissions would be minimal and would fall well below levels which would either pose an unacceptable risk to public health, or require a permit under the South Carolina Air Pollution Control Regulations and Standards or the Federal Clean Air Act. Measurements made during the operation of the SVE system confirmed that only the expected minimal levels of air emissions were produced by the system.

Construction of the SVE and groundwater pump-and-treat systems was completed in 1995. Both systems operated continuously between 1995 and 2004. Site groundwater concentrations of all of the contaminants decreased substantially during the groundwater extraction system's first four years of operation after 1995. However, in 1999 additional groundwater sampling in the areas being treated using SVE showed groundwater contamination higher than was present in the recovery wells. Dual-phase recovery wells were installed in these areas (2000-2001) to capture both soil vapor and groundwater for treatment. As of September 2004, the groundwater recovery and treatment system had captured more than 100 million gallons of groundwater and removed approximately 243 pounds of VOCs, and more than 2,250 pounds of VOCs had been removed by the SVE system. Confirmatory soil sampling in 2004 showed that Site cleanup goals for soil had been met.

In September 2004, based on declining performance from the groundwater pump-and-treat system, EPA and SCDHEC approved cessation of groundwater pump-and-treat operations. Approval was part of approving the PRPs' work plans for a Supplemental Remedial Action (Supplemental RA), an implementation of "technical maximization measures" called for in the 1991 ROD. These measures were intended as a "polishing step" to accelerate remedy completion, by treating the remaining areas of groundwater which still contain contaminants above the groundwater standards.

The Supplemental RA employs an enhanced reductive dechlorination (ERD, a form of in-situ biodegradation) treatment process. The Supplemental RA is performed as groundwater injection events in which nutrient (lactate) solutions are placed into the affected groundwater, followed by groundwater monitoring for a period, followed by a sampling of Site groundwater wells to determine the effects and influence of the treatment. Between October 2004 and August 2006, four (4) injection events were conducted. Groundwater results following the 2006 injection showed that groundwater concentrations were further reduced and that only eight (8) wells still had contaminants at levels above the groundwater standards. In early 2007, the PRPs' consultant proposed suspending further injections for a period of time to allow the aquifer to re-equilibrate. As reported in the 2007 Annual Progress Review Report, one main finding was that conditions suitable for continued use of

ERD persisted throughout the plume of affected groundwater. In June 2008 EPA and SCDHEC completed their review of the report, finding that there have been continued reductions in the remaining groundwater contaminant mass in most site wells, although there were specific wells and areas where no reductions, or smaller reductions, were achieved. EPA and SCDHEC approved the PRPs' general strategy for targeted injections at recalcitrant wells, with subsequent monitoring and sampling after the injection event as has been performed so far. The fifth injection treatment event was completed in July-August 2008, and a sixth treatment in August-October 2009. Surface water sampling (Jones Creek) from February 2009 indicates no detections of any site contaminants, continuing the trend from earlier years in the RA.

While the Supplemental RA has fulfilled the purposes of the "technical maximization" measures noted in the 1991 ROD, the length of time it has been underway has exceeded EPA's plans and expectations. For this reason, a formal modification of the Site remedy is being prepared in the form of a ROD Amendment. The remedy modification process will consider ERD and other potential remedial technologies that could be used to address remaining Site groundwater contamination. EPA expects to complete the ROD Amendment during 2011.

V. Description of Significant Differences and Basis for the ESD

Institutional controls in the form of a restrictive covenant must be implemented at the Site because the remedial action results in hazardous substances, pollutants, or contaminants remaining at the Site above levels that allow for unlimited use and unrestricted exposure to groundwater. The remedial action provided in the ROD does not include institutional controls for groundwater. As a result, an explanation of significant differences is needed to implement institutional controls in the form of a restrictive covenant as part of the groundwater remedy for the Site.

VI. Support Agency Comments

EPA consulted with SCDHEC and provided it the opportunity to comment on this ESD in accordance with the NCP, 40 C.F. R. § 300.435 (c)(2) and § 300.435 (c)(2)(i) and CERCLA § 121(f). SCDHEC concurred with this ESD in a letter dated September 27, 2010.

VII. Statutory Determinations

EPA has determined that these significant changes comply with the statutory requirements of CERCLA § 121, 42 U.S.C. § 9621, are protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, are cost-effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted no less often than each five years after the initiation of the remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

VIII. Public Participation

The public participation requirements set out in the NCP, 40 C.F.R. § 300.435(c)(2), have been met by publishing this ESD, making it available to the public in the Administrative Record, and publishing a notice summarizing the ESD in a major local newspaper.

IX. Authorizing Signature

I have determined the remedy for the Site, as modified by this ESD, is protective of human health and the environment, and will remain so provided the actions presented in this report are implemented as described above.

This ESD documents the significant changes related to the remedy at the Site. U.S. EPA selected these changes with the concurrence of SCDHEC.

U.S. Environmental Protection Agency

By: Franklin E. Hill

Franklin E. Hill
Director
Superfund Division

Date: 9/30/2010